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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/295,329	04/21/1999	YASUMASA KAWABE	Q54114	7050

7590 01/10/2002

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EXAMINER

CLARKE, YVETTE M

ART UNIT	PAPER NUMBER
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1752

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DATE MAILED: 01/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

9621

Office Action Summary

Application No.

09/295,329

Applicant(s)

KAWABE ET AL.

Examiner

Yvette M Clarke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 16-22 is/are allowed.
- 6) ☐ Claim(s) 1-15 and 23-25 is/are rejected.
- 7) ☐ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This is written in reference to application number 09/295329 filed on April 21, 1999 and CPA filed on September 9, 2000.

Response to Amendment

1. Claims 1-26 are concurrently pending.

Terminal Disclaimer

2. The terminal disclaimer filed on November 19, 2001 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US 6159656 has been reviewed and is NOT accepted.
3. The person who signed the terminal disclaimer is not recognized as an officer of the assignee, and he/she has not been established as being authorized to act on behalf of the assignee. See MPEP § 324.
4. An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

Oath/Declaration

5. The examiner acknowledges the declaration submitted pursuant to 37 CFR 1.132 by inventor Yasumasa Kawabe on December 21, 2001.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

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7. Claims 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims as submitted contain structures comprising the substituents R and A. The applicant has failed to define the said substituents. The examiner is unclear as to the exact structures that the applicants are claiming as his invention. For the purposes of examination, the examiner has applied the specification definition to the said substituents, wherein A can be hydrogen, hydroxyl, carboxyl, alkoxycarbonyl etc (pg. 29, l. 1-8) and R is a hydrogen or alkyl group having 1-3 carbon atoms (pg. 29, l. 16).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1, 3, 8 and 14-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 6159656 A. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed polymers (formula Ia, Ib, Ic and

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Id) of the said patent are all polymers having alicyclic hydrocarbon skeletons, which become alkali-soluble by the action of an acid as claimed by the applicant.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suwa (EP 789,278). Suwa teaches a radiation sensitive resin composition comprising a resin containing an alicyclic skeleton in its backbone (A), and acid generating agent (B), an acid cleavable additive, a nitrogen containing basic compound and additives such as surface active agents. The said resin A may contain at least one group, which is cleaved by an acid at any position thereon. The alicyclic skeleton may optionally contain one or more substituents. The said resin is preferably a resin, which becomes alkali soluble due to catalytic action of an acid to cleave the acid cleavable groups. Preferred alicyclic skeletons are given by the general formula (2) (page 3, l. 20-15, l. 57). The taught acid generating agent can be selected from the group consisting of onium salts, halogen containing compounds, diazoketone compounds, sulfone compounds and sulfonic acid compounds (pg. 16, l. 1-pg. 17, l. 3). The said acid generators can be used singly or in combination of two or more. The acid generator is present in the amount of 0.1-10 pbw per 100 pbw of the resin (pg. 17, l. 4-9). Suwa teaches that the addition of an acid cleavable additive serves to improve contrast as a positive type

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photoresist and increase affinity of the resin for an alkaline developing solution. The said additive includes polymeric compounds or low molecular weight compounds having at least one acid cleavable group (pg. 17, l. 10-15). Specific examples include t-butyl adamantane carboxylate, cholic acid t-butyl ester, etc. (pg. 17, l. 58-pg. 18, l. 9). The addition of a compounds, which acts as a Lewis base to an acid generated from the acid generating agent, improves perpendicularity of the side walls formed by a positive working resist system. Specific examples of such compounds include tri-n-butylamine, triethanolamine and 2-methylpyridine (pg. 18, l. 15-28). A variety of other additives can optionally be added to the resin composition. These additives include surface active agents such as FLUORAD FC430, FC431, SURFLON S-382, SC-101 and the like (pg. 18, l. 36-44). It is the examiner's position the taught FLUORAD compounds meet the limitation of a fluorine containing surfactant and the SURFLON compounds meet the limitation of a silicon containing surfactant. The said additives can be used singly or as a mixture of two or more. The composition solution is prepared by dissolving the taught components in a solvent. Suitable solvents include propylene glycol monoethyl ether acetate, 2-heptanone, methyl 3-methoxypropionate and ethyl 3-ethoxypropionate, ethylene carbonate, propylene carbonate and so forth (pg. 19, l. 5-26). The solvents can be used in singly or in a mixture of two or more. A variety of radiation types can be used to expose the resist composition. Examples include far UV radiation such as KrF and ArF (pg. 19, l. 30-37). In example 5, Suwa exemplifies a resin composition comprising resin AIII-4 (pg. 25, l. 25-pg. 26, l. 25), 4-hydroxynaphthyldimethylsulfonium triflate as an acid generating agent, tri-n-butylamine as the acid cleavable additive, and

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a solvent mixture of ethyl 2-hydroxypropionate and 2-heptanone (pg. 42, l. 35-pg. 43, l. 25; Table 2). It is the examiner's position that the exemplified acid generator meets the limitation of an onium salt and the said acid cleavable additive meets the limitation of a low molecular acid decomposable compound as claimed by the applicant. One of ordinary skill in the art would have been motivated by the teachings of Suwa to include either a single or a combination of two or more surface active agents into the exemplified composition of example 5 in order to improve the coating properties.

Although a solvent mixture of three components is not exemplified one of ordinary skill in the art would have been enabled by the teachings of Suwa to use two or more of the disclosed solvents to prepare the taught composition.

In regard to newly submitted claims 23-25, the Suwa teaches compounds a10, a11 and a14, which are structurally analogous to claimed compounds b-2 and b-5 (pg. 14).

Response to Arguments

11. Applicant's arguments filed November 19, 2001 have been fully considered but they are not persuasive. Applicants argue that the cited prior art of Suwa (EP 789278) fails to teach or disclose the problem of development defects that can be improved by the use of the claimed combination of a basic compound and a surfactant containing either silicon or fluorine.

12. In response to applicant's argument that the prior art fails to focus on solving the problem of the pending application, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art

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cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Suwa teaches that a nitrogen containing basic compound can be used to improve the perpendicularity of the sidewalls of a photoresist pattern (pg. 18, l. 15-19). Suwa further teaches that a surface active agent can be added to improve coating properties, developability and so forth (pg. 18, l. 34-35). Examples of the said surface active agents include surfactant, which contain silicon and fluorine. Therefore, one of ordinary skill would have been motivated to incorporate a nitrogen containing basic compound and a surface active agent into the photoresist composition of Suwa to obtain a composition which has improved coating properties and developability and a formed image which has improved perpendicularity in the side walls. The motivation of the prior art does not have to be that of the applicant.

13. The examiner has reviewed the comparative data presented in the declaration submitted on December 21, 2001. Applicants were successful in comparing the closest art by using the Megafac F171 surfactant, which is within the scope of the claimed invention and comparing it with a surfactant outside of the scope claims (polyoxyethylene nonyl phenyl ether). However, this said comparative data fails to be convincing. It is unclear to the examiner that the results are unexpected and superior. The film rate changes are slightly less than 5%, which is not a substantial variation. The profile data are evaluated by the terms A and B wherein A is defined as a rectangular shape and B is anything other than rectangular. The said descriptions are vague and the examiner is unable to make a clear determination as to an unexpected result. The

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examiner suggests provided pictures wherein the obtained "A" profile can be compared to the obtained "B" profile.

Allowable Subject Matter

14. Claim 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

15. Claims 16-22 are allowed.

16. The following is an examiner's statement of reasons for allowance: The comparative data II (Table B and B') were successful in showing unexpected and superior results upon using a solvent mixture within the limitations of instant claims 16-22 as compared to the prior art.

17. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not


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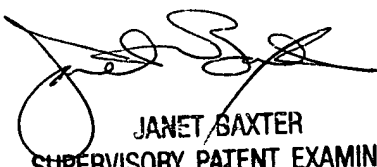
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette M Clarke whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 7-5:30.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

22. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193.

ymc 
January 8, 2002


JANET BAXTER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700